

geographic variation, individual variation, distribution and life-history, the last including field notes by Prof. Muller. There are also a bibliography and a historical introduction, an annotated list of Macedonian birds not contained in the collection and finally a nominal list of the 261 species recorded from the country with page references to the main text.

The study of the collection has been carried on with great care and a vast amount of detailed description and measurements is presented. The attention that has been given to the molts and plumages is deserving of especial commendation and it will interest American ornithologists to know that the comprehensive terminology proposed by Dr. Jonathan Dwight in this connection has been largely followed.

The nomenclature is up to date in every respect and includes references to the original description of every species as well as to the subspecies where it does not happen to be the "typical" race.

We notice only two new names proposed by the author: *Galerida cristata muellei* (p. 62) for *Alauda ferruginea* Mühle 1844 (nec *A. ferruginea* Smith 1830); and *Budytes flavus macronyx* (p. 76), a new form from Vladivostok allied to *B. f. thunbergi*.

There are eight excellent views of Macedonia reproduced in half-tone and a number of diagrams showing variation in wing length in various species.

Dr. Stresemann is to be congratulated upon producing a report that is a model of its kind and in providing us with a thoroughly up to date work of reference upon the avifauna of a country about which we knew but little.—W. S.

Wood on the Eyes of the Burrowing Owl.—Dr. Casey A. Wood has published a valuable paper on the eyes of the Burrowing Owl¹ with a full technical description of their structure compared with that of other owls and a plate of the fundus oculi.

His conclusions are of especial interest to ornithologists. He says: "In spite of the fact that Bendire and Hudson refer to the animal as a diurnal owl, their accounts of its habits really bear out the writer's contention of a nocturnal animal with fairly good day vision, yet distinctly embarrassed, uncertain, and confused when the eyes are exposed to bright sunlight. Stress is laid by a number of observers upon the fact that this owl is seen at all times of day standing guard often on a little mound of earth in front of his burrow entrance, forgetting that as a much more interested householder, he also watches from the same post all hours of the night." Dr. Wood finds the eye structure similar in every respect to that of nocturnal animals.

¹ The Eyes of the Burrowing Owl with Special Reference to the Fundus Oculi. By Casey A. Wood, M.D., Chicago, Ill. Reprinted from Contributions to Medical and Biological Research. Dedicated to Sir William Osler, in Honor of his Seventieth Birthday, July 12, 1919, by his Pupils and Co-Workers. Svo., pp. 819-823.

Other owls as is well known spend the day at rest on some suitable perch and it is probably only the exposed habitat of this species that makes it more conspicuous at this time and invites the assumption that it is diurnal in habits. The ease with which we make unauthorized assumptions may be seen at another point in Dr. Wood's paper where following the majority of writers he says that these owls mate "probably for life" whereas Mr. Baldwin's investigations on bird breeding (cf. Auk, 1920 p.) seem to show that we have no warrant for any such assumption.

Dr. Wood's paper is most welcome as we need just such special investigation into the various organs of birds before we can hope for a proper understanding of their systematic relationships.—W. S.

Murphy on the Seacoast and Islands of Peru.—Mr. Robert Cushman Murphy has published two papers¹ descriptive of his recent trip to the Peruvian seacoast which give one an interesting account of this country and its physical features. Of especial interest to the zoologist is his discussion of the ocean currents and their effect upon the distribution of life on the Pacific coast of America. Many sketch maps show clearly how cold currents, following the coast as far south as Cape San Lucas, carry boreal types southward and how similar currents flowing northward bring antarctic types as far as northern Peru, while warm ocean streams on the west coast of Mexico, Central America and northern South America delimit the range of the tropical life found on the shores of this area. The uniformity of surface temperature on the Peruvian coast as compared with the western Atlantic and the percentage of salinity are discussed with reference to their effect upon animal life, while the climate of Lima is graphically described as well as the faunal zones of Peru dependent, as has been shown by Dr. Chapman in the case of Colombia farther north, upon winds and cloud banks quite as much as upon elevation.

Mr. Murphy's papers should be read by everyone interested in South America and its fauna as well as by students of geographical distribution, who will find in this southern continent factors which are entirely absent in North America and which are quite novel to one trained to explain everything by circumpolar temperature zones and peculiarities of local environment.—W. S.

Dr. Shufeldt's Bibliography.—The seventh and eighth installments of Dr. Shufeldt's bibliography² have appeared which bring the list down to 1918, while the introductory pages contain much biographical matter.—W. S.

¹ The Seacoast and Islands of Peru. By Robert Cushman Murphy. Parts I and II. The Brooklyn Museum Quarterly, January and April, 1920.

² Complete List of My Published Writings with Brief Biographical Notes. By R. W. Shufeldt, Medical Review of Reviews, July and August, 1920, pp. 368-377 and 437-447.